

Original Research Report

Strategies for Enhancing Dietary Pattern and Nutrient Intake of the Elderly (60 Years) and Above in Idemili North Local Government Area, Anambra State, Nigeria

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Abstract: The study examined the strategies for enhancing dietary pattern and nutrient intake of the elderly (60 years) and above in Idemili North Local Government Area of Anambra State, Nigeria. The design used for the study was a descriptive survey design. The population for the study was 1480 retirees above 60 years. The sample size was 150 retirees selected using the convenience sampling technique. A structured questionnaire was the instrument used for the collection of data. Data collected were analyzed using mean. Findings revealed that the challenges to adequate dietary pattern and food intake of the elderly included inadequate knowledge of organic and healthy foods, problems on food insecurity (unavailability and poor access to food), and poor nutrition knowledge about foods required by the elderly, among others. Findings also indicated that the strategies for enhancing the dietary pattern and food intake of the elderly included creating nutrition awareness for the elderly on adequate feeding, encouraging home gardening to enhance vegetable production, and providing nutritional counselling for the elderly. Based on the findings of the study, it was recommended that nutrition awareness should be created for the elderly in order to enhance their dietary pattern and food intake. Also, in order to meet the recommended nutrient intake by the elderly, the use of dietary supplements like multivitamin supplements, protein supplements and mineral supplements can be used.

Keywords: Dietary, Elderly, Nutrient, Pattern, Strategies

1. Introduction

The aged is someone who is old and close to the end of the ageing process and bears visible physical signs of a gradual process of the decline. Ogundahunsi and Akinrinmade (2017) stated that an aged is someone elderly above 60 years of age. Aging is a multidimensional process characterized by several physical, social and physiological alterations occurring in humans during the course of life (Damanpreet et al., 2019). The ageing population is globally increasing rapidly. United Nations (UN) (2015) reported that global increase in ageing population and increase in survival for persons above 60 years can be attributed to technological advancements in medicine and water, hygiene and sanitation measures among others. The physiological and psychological changes that occur among elderly have nutritional implications as older persons are vulnerable to malnutrition. Eze and Njoku (2018) described malnutrition as an unhealthy condition that develops when the body does not get enough of the vitamins, minerals and other nutrients it needs to function properly.

Malnutrition is associated with a decline in functional status, impaired muscle function, decrease mass immune dysfunction, anaemia, reduce cognitive function, poor wound healing, delayed recovery from surgery among others (Animashaun & Chapman, 2017; Subhangine, 2012). Malnutrition among the elderly are mostly vitamin and mineral deficiencies caused by low absorption of nutrients as stomach acid secretion slows down in people as they age (Ogundahunsi & Akinrinmade, 2017). Moreover, after the age of 60 years, people tend to eat less because they need less energy. As a result, their vitamin intake through food drops. Many other factors also contribute to malnutrition among the elderly. The elderly requires adequate and sufficient nutrition to maintain functional capacity, which in turn enables them to live an independent life within their own family and community. The World Health Organization (WHO) (2016) noted that nutrition is the intake of food considered as it relates to the bodies dietary needs. Adequate nutrition boost individuals resistance to diseases and allows the inherited constitution to perform its functions hence the elderly person is genetically programmed to remain younger for a long period. Although heredity can influence the incidences of diseases that will likely lead to premature ageing and death, the incidence and seriousness of hypertension, diabetes mellitus, stroke, heart attacks, gall-bladder, liver, kidney and skin diseases as well as many ailments commonly found among the elderly are influenced by adequacy of food intake.

Adequate nutrition is essential to people of all ages but particularly important to elderly persons because of the physiological changes that occur in the body as one ages. Poor nutrition contributes to functional limitations thereby leading to loss of muscle mass, metabolic abnormalities and diminished immunity (Pan et al., 2011). Adequate diet and optimum nutritional status enhances the maintenance of immune response of older persons by helping to enhance resistance to infections and other immune-related diseases. Agbozo, Amardi-Mfoafo, Dwase and Ellah (2018) noted that the functionality and capacity of elder persons depend on their nutritional status which is the cornerstone in determination of elderly well being. However, changes in body composition of physiological function that occur with age may also have a direct influence on nutrient requirements. Reduction in muscle mass, bone density, immune function and nutrient absorption and metabolism may make it difficult for the aged to meet their nutrition requirement especially when energy needs are reduced. However, this problem can be reduced with a good dietary pattern.

Dietary pattern can be defined as the quantity, variety or combination of different foods and beverage in a diet and frequency with which they are habitually consumed. It is necessary to take into consideration the changes that ageing brings with it. The dietary pattern in the aged are

determined by many physical, mental and emotional factors such as impaired visions, mobility, smell, hearing, taste, poor teeth or ill fitting denture (Ibiyemi, Fadupin, Agbato & Soyewo, 2012). Dietary requirements in older people are higher due to reduced skin protection, decreased exposure to sunlight and thinning of the skin. Anderson, Harris and Tylavsky (2011) reported that nutritional assessments performed in Africa revealed that the diet of the elderly is generally inadequate in terms of quality and quantity. Damanpreet et al. (2019) reported that low food intake increases the risk of micronutrient deficiencies, especially when the micronutrient density and/or bioavailability in food are low, which is often the case for diets in developing countries. A factor complicating the nutritional status of elderly people in developing countries like Nigeria is that many experience inadequate food intake during much of their childhood and adult life.

Poor dietary pattern has been associated with age-related declines in renal function, fluid imbalances, poor hydration and long-term chronic illness. Govindaraju, Sahle, McCaffrey, McNeil and Owen (2018) reported that dietary pattern of the aged is directly related to their quality of life. Good dietary and nutrient intake is an integral component of the overall health of the aged. Adequate nutrition is an important and readily modifiable risk factor for disease prevention, and studies have consistently shown a relationship between diet and health in the elderly. The dietary patterns in aged evolve depending on health, psycho-somatic and social conditions (Kiefte-De, Mathers & Franco, 2014). In most communities in Nigeria, old age is seen as a blessing. The aged are revered and placed in the highest ladder of family strata. The level of importance attached to old age is such that communities without old people are frowned at. The challenge however is that in Idemili North Local Government Area of Anambra State, it is common to see the aged as a burden. They are saddled with the ill-health that is commonly caused by poor or inadequate nutrition to enhance their ageing process. Inadequate nutrition and food intake results to osteoporosis in the aged which is a systematic skeletal disease characterized by low bone mass (Ibiyemi, Fadupin, Agbato & Soyewo, 2012; Wells, & Dumbrell, 2006). Challenges faced by the aged could be psychological such as delirium, dementia, depression, anxiety, alcoholism and bereavement. Social factors include isolation, poverty, inability to shop, prepare and cook meals. Physical factors together with the implications of growing old also affect the dietary pattern of the aged in Idemili North. It is based on this background that the study sought dietary pattern and nutrient intake of the aged in Idemili North Government Area of Anambra State.

1.1. Statement of Problem

Ageing is a natural process that reflects biological and physiological changes. Ageing diminishes the capacity to work and it is also a stage of several vulnerabilities including the onset of chronic malnutrition diseases caused by poor dietary patterns. According to Walls and Dumbrell (2017), good nutrition is very important for the aged but, many aged persons become malnourished added to the issue of different chronic medical conditions which can contribute to poor nutrition, loss of appetite, mental health problem or taken certain medications, decreased sense of taste/smell which can make the aged so uncomfortable and unpleasant to eat. Most times, the aged have difficulty in chewing and swallowing especially if associated with dental problem.

Chronic conditions and medications can also interfere with digestion and absorption of certain nutrient. More so, mental and emotional factors such as depression, dementia and social isolation affect some aged and dampen their desire and ability to eat. With aging, there is a decline in the ability to ingest adequate amount of food and as a consequence, elderly are not able to meet their recommended nutrient requirements (Damanpreet et al., 2019). There are poor or decreased dexterity

and work capacity, poor memory, loneliness and depression, illness and multiple medications, limited financial resources that come with ageing (Shubhangini, 2012). Furthermore, financial problem can make it difficult for many aged to get the nutrition they need (Ogundahunsi & Akinrinmade, 2017). Several studies reviewed addressed the dietary pattern and nutrient intake of the elderly in different areas, none of the reviewed studies focused on the strategies for enhancing dietary pattern and nutrient intake of the elderly in Idemili North Local Government Area of Anambra State, Nigeria. This is the gap filled by the study in literature.

1.2. Purpose of the Study

The main purpose of study was to determine the strategies for enhancing dietary pattern and nutrient intake of the elderly (60 years) and above in Idemili North Local Government Area, Anambra state

Specifically the study determined:

- (a) challenges to adequate dietary pattern and nutrient intake of the elderly (60 years) and above in Idemili North Local Government Area, Anambra state
- (b) Strategies for enhancing dietary pattern and nutrient intake of the elderly (60 years) and above in Idemili North Local Government Area, Anambra state

1.3. Research Questions

- (a) What are the challenges to adequate dietary pattern and nutrient intake of the elderly (60 years) and above Idemili North Local Government Area, Anambra state?
- (b) What are the strategies for enhancing dietary pattern and nutrient intake of the elderly (60 years) and above Idemili North Local Government Area, Anambra state?

2. Materials and Methods

2.1. Design for the Study

The study adopted a descriptive survey design

2.1.1. Ethics Approval of Research

In compliance to the research guidance of American Psychological Association, the institution of the principal investigator approved this research. The researchers also sought for the permission of the participants and their consent was obtained orally.

2.2. Area of the study

The study was carried out in Idemili North Local Government Area of Anambra State which comprises of ten different towns namely Abatete, Ogidi, Umuoji, Uke, Ideani, Nkpor, Obosi, Eziokwelle, Alor and Oraukwu. The Idemili North Local Government Area was chosen because one of the researchers is an indigene of Idemili Local Government and she has observed the poor state of the dietary pattern and food intake of the elderly in that locality.

2.3. Population and Sample

The population for the study was 1480 which comprised of all retirees (above 60 years) in Idemili North Local Government Area of Anambra State. According Idemili North Local Government records office, about one thousand, four hundred and eighty (1480) civil servants have retired from service from 2012 to 2021.

Sample size for the study was one hundred and fifty (150) which consisted of retirees above 60 years living in Idemili Local Government Area of Anambra State. The sampling size represented about ten percent (10%) of the total population. Convenience sampling technique was used to identify 15 retirees above 60 years from each of the 10 towns in the Local Government. The retirees were easily

reached through Catholic and Anglican churches in the local government.

2.4. Instrument for Data Collection and Study Procedure

Questionnaire was the instrument for data collection. The questionnaire consists of two sections. Section A sought for demographic characteristics while section B generated items based on purposes of the study and research questions. The questionnaire was designed for the aged retirees above 60 years.

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2.5. Data collection Technique

Data for the study was collected by the researchers with aid of three research assistants. The administration of the questionnaires lasted for one week. During the process, the participants received a copy of the questionnaire with request that if they not have writing materials, research assistants could provide them. Each participant was allowed to complete the questionnaire immediately and those that could not finish were permitted to return within one week. Also, the research assistants were trained experts in dietary, therefore, there was no training given to them by the research team. They were briefed about the aim of the study.

2.6. Data Analysis Technique

After the data collection, it was cued into IBM SSPS software version 28 The demographical variable and other categorical variables were entered as variable and data views. The data analysts used mean to analyze the data. For the decision rule, mean responses from 2.50 and above were regarded as agreed upon while mean responses from 2.49 and below were regarded as disagreed upon.

3. Results and Discussion

3.1. Research question one: What are the challenges to adequate dietary pattern and nutrient intake of the elderly (60 years) and above Idemili North Local Government Area, Anambra state?

Table 1: Mean Responses on the challenges to adequate dietary pattern and nutrient intake of the elderly (60 years and above) in Idemili North Local Government Area, Anambra state

S/No	Challenges to Adequate Dietary Pattern and Nutrient Intake of the elderly (60 years and above)	\bar{X}	Remark
1.	Lack of proper and advance meal planning by the aged	3.5	Agreed
2.	Inadequate time dedicated to elderly food preparation	3.0	Agreed
3.	Attitude of the elderly during meal time	3.0	Agreed
4.	Inadequate knowledge of organic and healthy foods	2.5	Agreed
5.	Problem on food insecurity (Unavailability and poor access to food)	2.7	Agreed
6.	Difficulty in preparation of foods for the elderly	2.7	Agreed
7.	Poor nutrition knowledge about foods required by the elderly	3.7	Agreed
8.	Religion, custom and beliefs affects the foods consumed by elderly	2.8	Agreed
9.	High cost of food stuff and poor financial state of the aged	3.5	Agreed
10.	Difficulty in chewing experienced by the elderly	2.2	Agreed

Table 1 showed that the respondent's agreed with the listed challenges to adequate dietary pattern and nutrient intake of the elderly (60 years) and above. The mean responses were all above 2.50.

This implies that the respondents agreed that the challenges to adequate dietary pattern and food intake of the elderly included lack of proper and advance meal planning by the aged, inadequate time dedicated to elderly food preparation, attitude of the elderly during meal time, inadequate knowledge of organic and healthy foods, problem on food insecurity (unavailability and poor access to food), difficulty in preparation of foods for the elderly, poor nutrition knowledge about foods required by the elderly, religion, custom and beliefs affects the foods consumed by elderly, high cost of food stuff and poor financial state of the aged and difficulty in chewing experienced by the elderly.

3.2. Research question two: What are the strategies for enhancing dietary pattern and nutrient intake of the elderly (60 years) and above Idemili North Local Government Area, Anambra state?

Table 2: Mean Responses on the Strategies for enhancing dietary pattern and nutrient intake of the elderly (60 years and above) in Idemili North Local Government Area, Anambra state.

S/No	Strategies for Enhancing Dietary Pattern and Nutrient Intake of the Elderly	\bar{X}	Remark
1.	Creating nutrition awareness for the elderly on adequate feeding	4.0	Agreed
2.	Encouraging home gardening to enhance vegetable production	3.0	Agreed
3.	Regular medical check up to detect deficiencies of the elderly on time	3.0	Agreed
4.	Encouraging the elderly to adhere to meal plan	2.5	Agreed
5.	Providing nutritional counselling for the elderly	3.5	Agreed
6.	Adding extra calories without extra volume to elderly meals	3.0	Agreed
7.	Using herbs and spices sparingly when preparing meals for the elderly	3.5	Agreed
8.	Use of diet supplements such as multivitamin tablets	3.2	Agreed
9.	Making meals for elderly to be more colourful and appealing	3.0	Agreed
10.	More fruits and vegetables should be consumed due to diminishing appetite	2.5	Agreed
	Making meal time enjoyable for the elderly	2.7	Agreed

Table 2 showed that the respondent's agreed with the highlighted strategies for enhancing dietary pattern and nutrient intake of the elderly (60 years and above). The mean responses were all above 2.50 which is the cut-off point. This implies that the strategies for enhancing the dietary pattern and food intake of the elderly included creating nutrition awareness for the elderly on adequate feeding, encouraging home gardening to enhance vegetable production,, regular medical check up to detect deficiencies of the elderly on time, encouraging the elderly to adhere to meal plan, providing nutritional counselling for the elderly, adding extra calories without extra volume to elderly meals, using herbs and spices sparingly when preparing meals for the elderly, making meals for elderly to be more colourful and appealing, more fruits and vegetables should be consumed due to diminishing appetite and making meal time enjoyable.

Findings showed that the challenges to adequate dietary pattern and food intake of the elderly included lack of proper and advance meal planning by the aged, inadequate time dedicated to elderly food preparation, attitude of the elderly during meal time, inadequate knowledge of organic and healthy foods, problem on food insecurity (unavailability and poor access to food), difficulty in preparation of foods for the elderly, poor nutrition knowledge about foods required by the elderly, religion, custom and beliefs affects the foods consumed by elderly, high cost of food stuff and poor financial state of the aged and difficulty in chewing experienced by the elderly. In line with the findings, Ogundahunsi and Akinrinmade (2017) reported in their study that elderly people are unable

to engage in adequate dietary pattern because of their inability to afford certain desired foods as a result of high cost of food commodities. In the same line of thought, Ibiyemi, Fadupin, Agbato and Soyewo (2012) noted that the dietary pattern in the aged are determined by many physical, mental and emotional factors such as impaired visions, mobility, smell, hearing, taste, poor teeth or ill fitting denture. To further buttress the findings, Assaf et al. (2016) reported in their study on dietary pattern among older adults that dietary adequacy among older adults has been shown to be associated with financial independence. In addition, elderly persons have been reported to consume less than the recommended intake of fruits and vegetables making them predisposed to the onset of chronic diseases as age advances (Govindaraju et al., 2018).

Findings indicated that the strategies for enhancing the dietary pattern and food intake of the elderly included creating nutrition awareness for the elderly on adequate feeding, encouraging home gardening to enhance vegetable production,, regular medical check up to detect deficiencies of the elderly on time, encouraging the elderly to adhere to meal plan, providing nutritional counselling for the elderly, adding extra calories without extra volume to elderly meals, using herbs and spices sparingly when preparing meals for the elderly, making meals for elderly to be more colourful and appealing, more fruits and vegetables should be consumed due to diminishing appetite and making meal time enjoyable. In support of the findings, Granic, Sayer and Sian (2019) reported that nutrition intervention is needed for elderly in order to ensure that they engage in adequate dietary practices. In the same line of thought, Damanpreet et al. (2019) noted that the adoption of nutritional intervention can be a measure to tackle the current situation of nutritional deficiencies among elderly. The physiological decline in food intake is very common among older age and this result in nutritional deficiencies. Incorrect dietary pattern among elderly results in the progression of some communicable but chronic diseases like type II diabetes, atherosclerosis, coronary heart disease and malnutrition. Like other descriptive studies, the present study has some theoretical and methodological flaws. Firstly, this study did anchor the present findings to existing theoretical knowledge. Secondly, there sample size is relatively small. Thirdly, this study used only quantitative measures disregarding qualitative dimensions. With all these major weaknesses, the researchers suggest that caution should be in interpreting and generalizing the results. Also, future studies should consider these flaws in the subsequent studies.

4. Conclusion

Based on the findings of this study, it can be concluded that the challenges to adequate dietary pattern and food intake of the elderly included lack of proper and advance meal planning by the aged, inadequate knowledge of organic and healthy foods, problem on food insecurity (unavailability and poor access to food), difficulty in preparation of foods for the elderly, poor nutrition knowledge about foods required by the elderly among others. Findings also indicated that the strategies for enhancing the dietary pattern and food intake of the elderly included creating nutrition awareness for the elderly on adequate feeding, encouraging home gardening to enhance vegetable production, regular medical check up to detect deficiencies of the elderly on time and providing nutritional counselling for the elderly. Based on the findings of the study, it was recommended that nutrition awareness should be created for the elderly in order to enhance their dietary pattern and food intake. Nutrition intervention programmes such as nutrition counselling and treatment for the elderly can be organised by government through the Ministry of Health. In order to meet the recommended nutrient intake by the elderly, the use of dietary supplements like multivitamin supplements, protein

supplements and mineral supplements can be used. Frequent nutrition research is needed to explore metabolic changes and nutrient needs of the aged.

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Conflict of Interest

The authors declare no conflict of interest.

Author Contributions

FNO, NNE, KPO, and ECO conceptualized the study and finally edited the manuscript. FNO and NNE proposed the methodology while KPO and ECO finalized the procedure. KPO provided some materials and software used during the study. FNO ensured that the data was analysed and the discussion section was completed. The data curation was done by NNE, and KPO. All authors approved the final version for publication.

Data availability Statement

The original contributions presented in the study are included in the article. Further inquiries can be directed to the corresponding author.

References

- Agbozo, F., Amardi-Mforafo, J., Dwase, H., & Ellahi, B. (2018). Nutrition knowledge, dietary pattern and anthropometric indices of older persons in four per-urban countries in Ghana West Municipality, Ghana. *African Health Sciences*, 18, 743-755. DOI: 10.4314/ahs.v18i3.33
- Anderson, A.L., Harris, T.B., & Tyllavsky, F.A. (2011). Dietary patterns and survival in older adults. The Health ABC study. *Journal of the American Dietetic Association*, 11, 84-91. DOI:10.1016/j.jada.2010.10.012
- Animashaun, V. & Chapman, H. (2017). Psychosocial health challenges of the elderly in Nigeria: A narrative review. *African Health Sciences*, 17, 575- 583. DOI: 10.4314/ahs.v17i2.35
- Assaf, A. R., Beresford, S. A., Risica, P. M., Aragaki, A., Brunner, R. L., Bowen, D. J., Naughton, M., Rosal, M. C., Sneltselaar, L., & Wenger, N. (2016). Low-fat dietary pattern intervention and health-related quality of life: The Women's Health Initiative randomized controlled dietary modification trial. *Journal of Academic and Nutrition Diet*, 116, 259–271. DOI:10.1016/j.jand.2015.07.016
- Damanpreet, K., Prasad, R., Jyoti, S., Sawinder, K., Vikas, K., Dipendra, K. M., Anirban, D., Kajal, D., & Sudhir, K. (2019). Nutritional Interventions for elderly and considerations for the development of geriatric foods. *Current Ageing Science*, 12, 15-27. DOI:10.2174/1874609812666190521110548
- Eze, N. M. & Njoku, H. A. (2018). *Foods and nutrition today. Understanding nutrition for students in tertiary institutions*. Enugu: Grand-Heritage Global Communications
- Govindaraju, T., Sahle, B. W., McCaffrey, T. A., McNeil, J. J., & Owen, A. J. (2018). Dietary patterns and quality of life in older adults: A systematic review. *Nutrients*, 8, 971. DOI:10.3390/nu10080971

- Granic, A., Sayer, A. A., & Sian, M. R. (2019). Dietary patterns, skeletal muscle health, and sarcopenia in older adults. *Nutrients*, *11*, 745-757. DOI: 10.3390/nu11040745
- Ibiyemi O. O., Fadupin, G. T., Agbato, S. O., & Soyewo, D. O. (2012). Serum micronutrient status and nutrient intake of elderly Yoruba people in a slum of Ibadan, Nigeria *Public Health Nutrition*, *17*(2), 455–461. DOI: 10.1017/S1368980012004971
- Kieft-De J. C., Mathers, J. C., & Franco, O. H. (2014). Nutrition and healthy ageing: The key ingredients. *Proceedings of the Nutrition Society*, *73*, 249–259. DOI: 10.1017/S0029665113003881
- Nigerian Bureau of Statistics (2018). Demographic Statistics Bulletin. Retrieved from <https://www.nigerianstat.com> (accessed June 3, 2022)
- Ogundahunsi, G. A., & Akinrinmade, R. (2017). Dietary intake, anthropometric characteristics and clinical assessment of elderly in Ondo State, Nigeria. *Journal of Nutrition and Health Science*, *4*, 303. DOI: 10.15744/2393-9060.4.303
- Pan, W. H., Wu, H. J., Yeh, C. J., Chuang, S. Y., Chang, H. Y., Yeh, N. H., & Hsieh, Y. T. (2011). Diet and health trends in Taiwan: comparison of two nutrition and health surveys from 1993-1996 and 2005-2008. *Asia Pacific Journal of Clinical Nutrition*, *20*, 238-250. DOI: 10.3316/INFORMIT.120681050263248
- Subhangine, A. (2012). *Nutrition and Dietetics*. (3rd Ed.). New Delhi: Tata McGraw Hill Education
- United Nations (UN) (2015). Department of economic and social affairs, population division. World Population Ageing. United Nations; New York. Retrieved from <https://www.unitednationsdepartmentofeconomicandsocialaffairspopulationdivision.doc> (accessed July 2, 2022)
- Wells, J. L., & Dumbrell, A. C. (2006). Nutrition and aging: assessment and treatment of compromised nutritional status in frail elderly patients. *Clinical Interventions in Aging*, *1*, 67–79. DOI: 10.2147/ciia.2006.1.1.67
- World Health Organization. (WHO, 2016). Active ageing: A policy framework. World Health Organization, Geneva. Retrieved from <https://www.who.int/lageing/> (accessed May 12, 2021)